

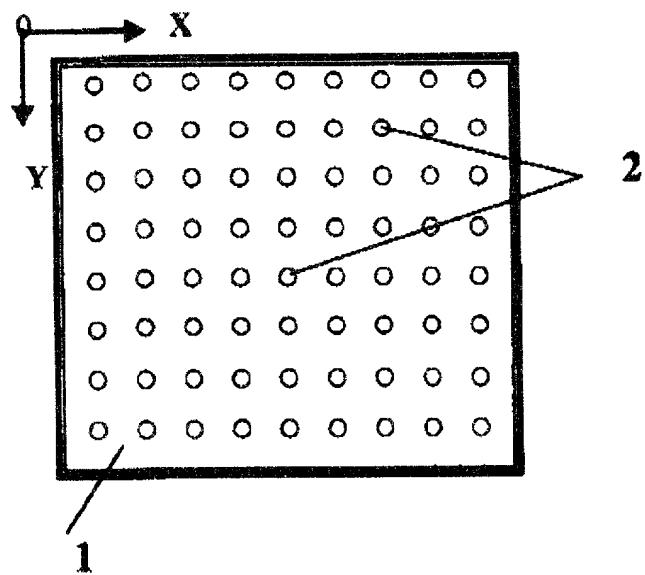
**Fig.1**

**Periodic Test-Object Orientation on the Microscope Stage.**

1 - Microscope Frame(Field of View);

2 - Diffraction Grating Strips Images

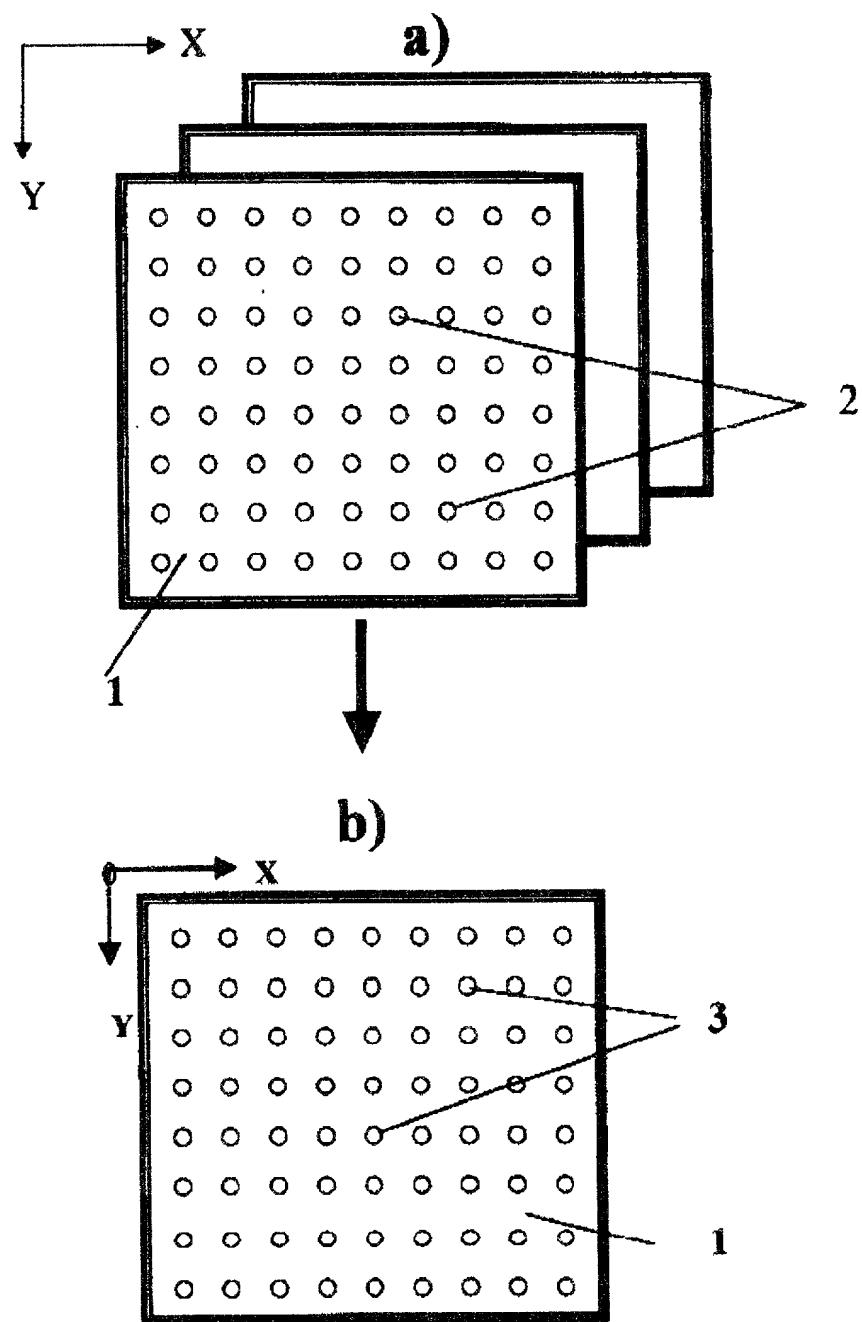
The Line Scan Direction Indicates by the Arrow at the top of the Frame.



**Fig.2**

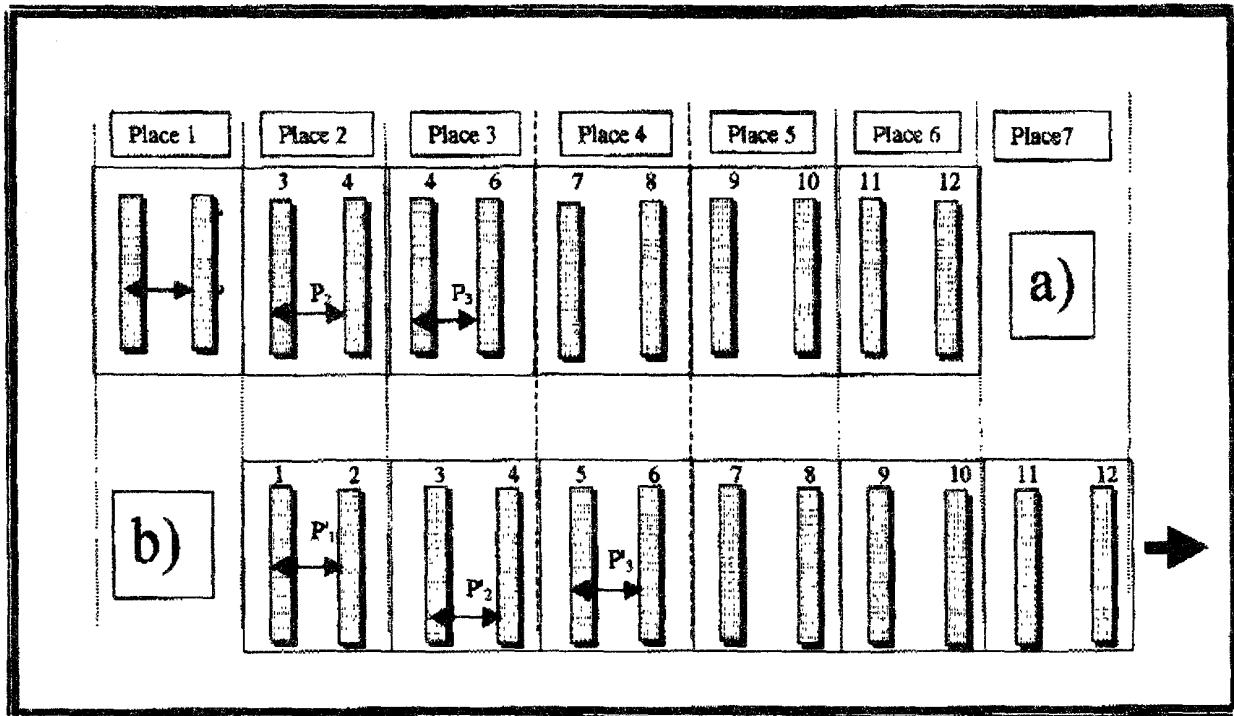
**Two-Dimensional Array of Signal Values**

1 - Microscope Field of View;  
2 - Individual Signal Values Versus Coordinates X and Y.



**Fig.3**  
**The Averaging of Arrays Procedure.**

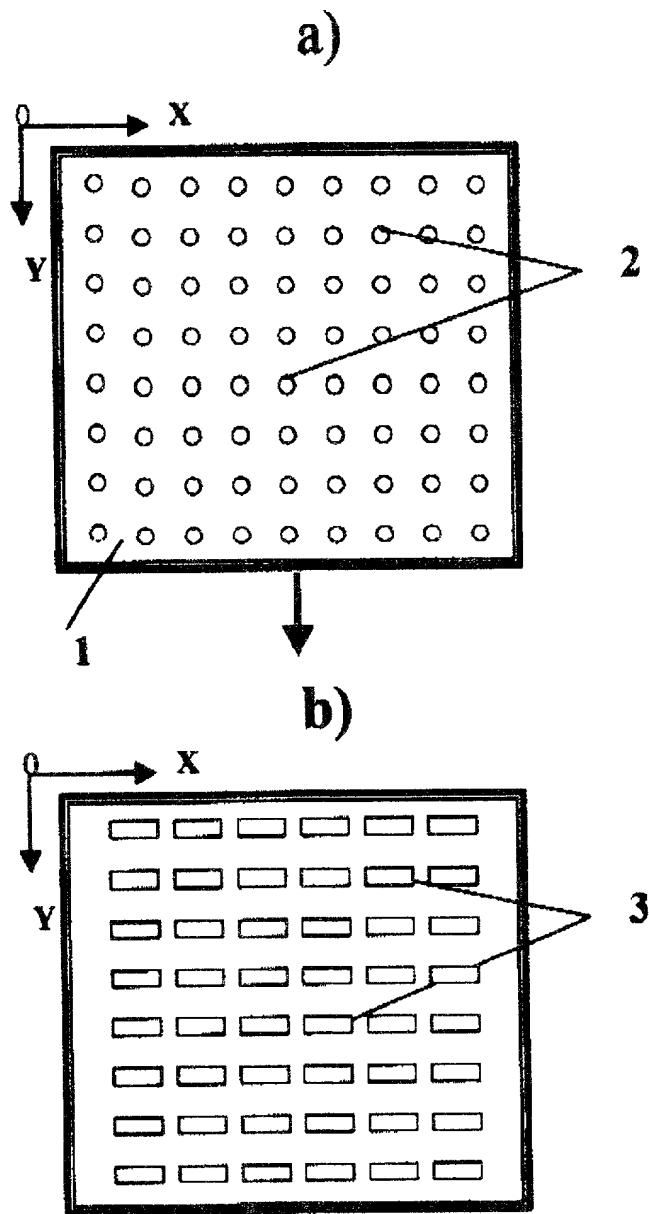
- a) – Set of Initial Two-Dimensional Signal Arrays;
- b) – the Averaged Two-Dimensional Signal Array;
- 1 – Microscope Field of view; 2 – the Signal Values in Initial Two-Dimensional Arrays; 3 – the Signal Values in the Averaged Two-Dimensional Array.



**Fig.4**

**Shift of the Diffraction Grating Image in the Microscope Field of View  
According to Claim 1.a.**

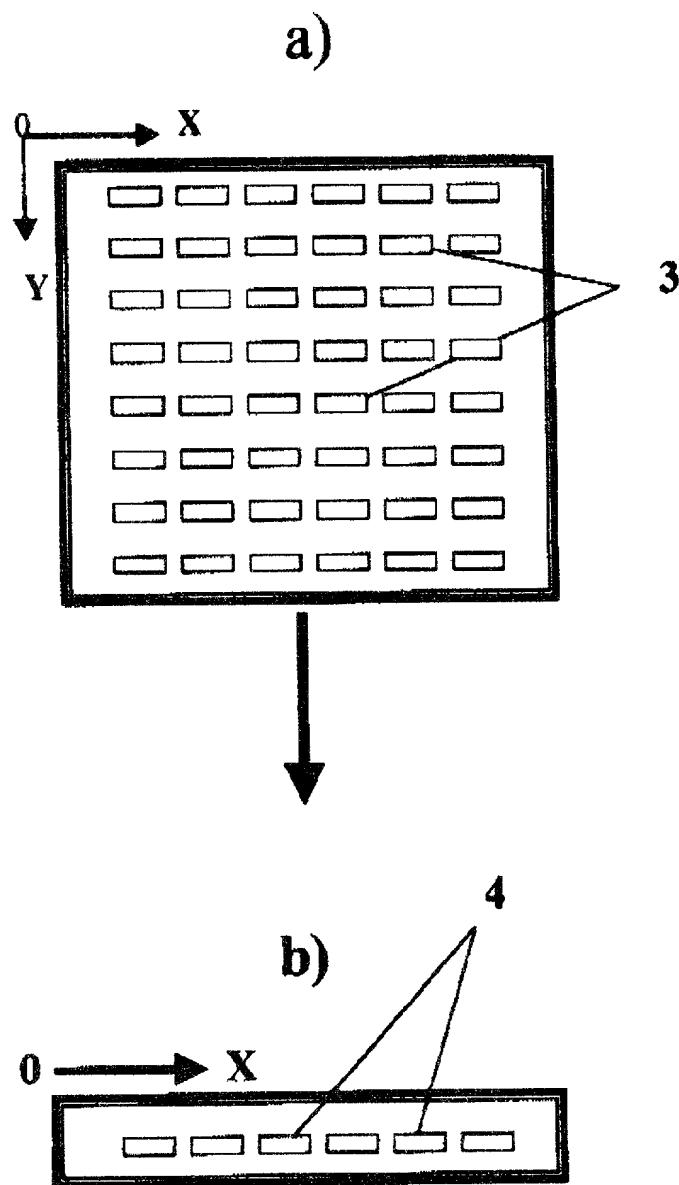
Row a) is the Initial Grating Image; Row b) is the Image of Shifted Grating.  
The Arrow at bottom right Indicates the Shift Direction.



**Fig.5**

Transformation of Two-Dimensional Individual Signal Values Array (a)  
into Two-Dimensional Individual Pitch Values Array (b).

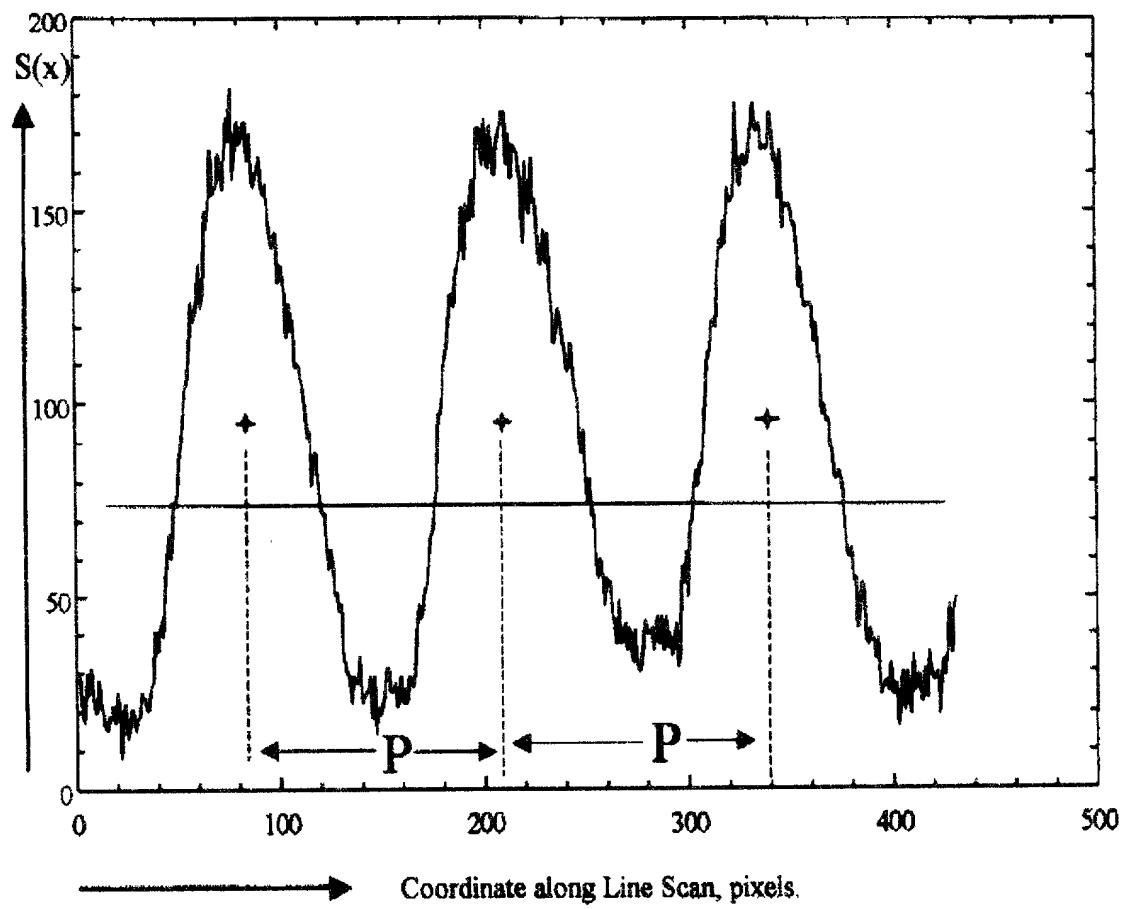
2 - Individual Signal Values Versus Coordinate X and Y  
3 - Individual Pitch Values Versus Coordinate X and Y



**Fig.6**

Transformation of the Two-Dimensional Individual Pitch Values Array (a) into One-Dimensional Mean Pitch Values Profile (b).

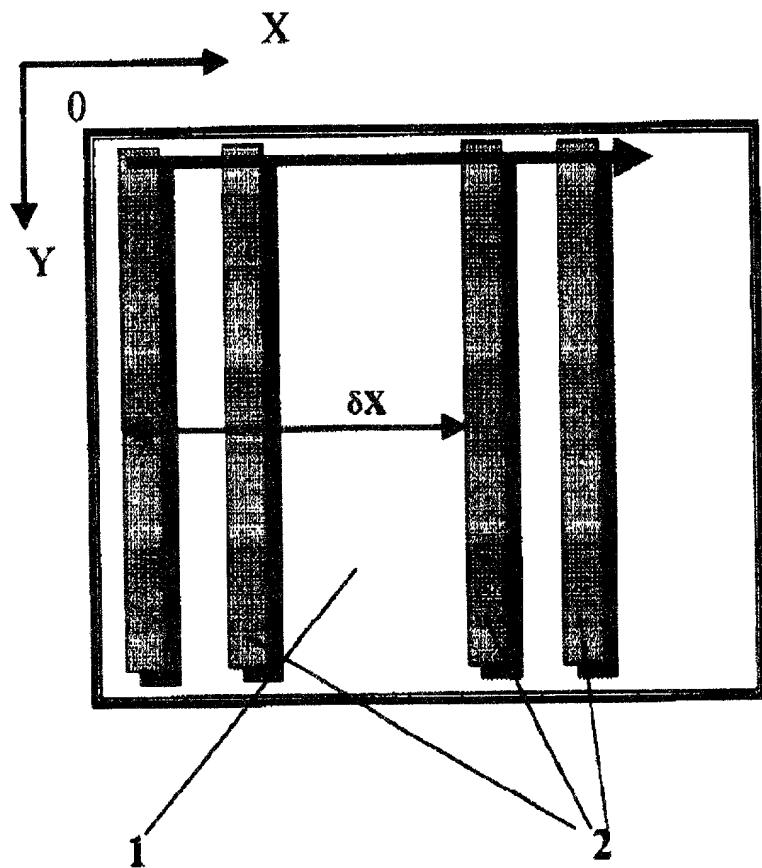
- 3 - Individual Pitch Values Versus Coordinate X and Y;
- 4 - Mean pitch Values versus X-Coordinate Created by Averaging of Individual Pitch Values along Y-Direction.



**Fig. 7**

Signal cutting off by threshold

The sign  $\oplus$  indicates the position of the Centres of mass of signal islands.

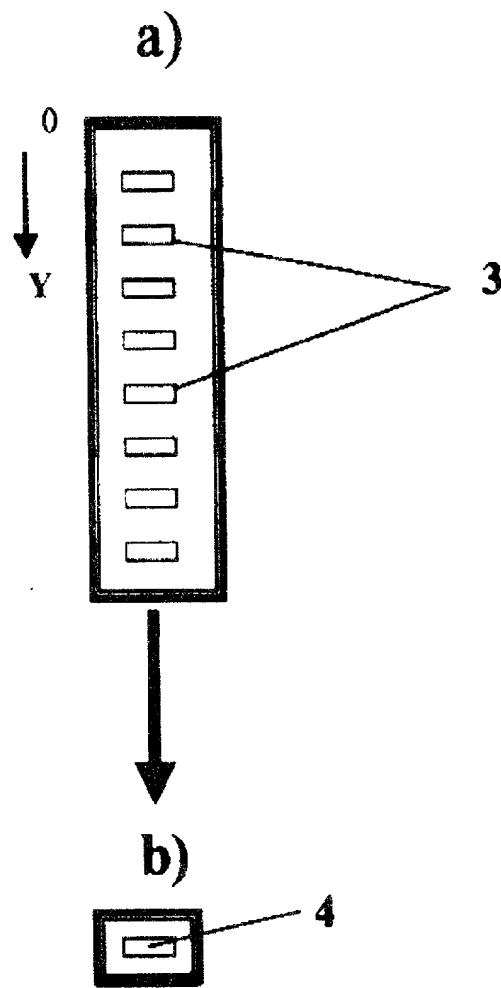


**Fig.8**

**Shift of the Strip Pair across Microscope Field of View  
According to Claim 7.**

The Arrow at Top of Frame Indicates the Shift Direction; the Arrow at the Frame Middle indicates the Shift Magnitude  $\delta X$ .

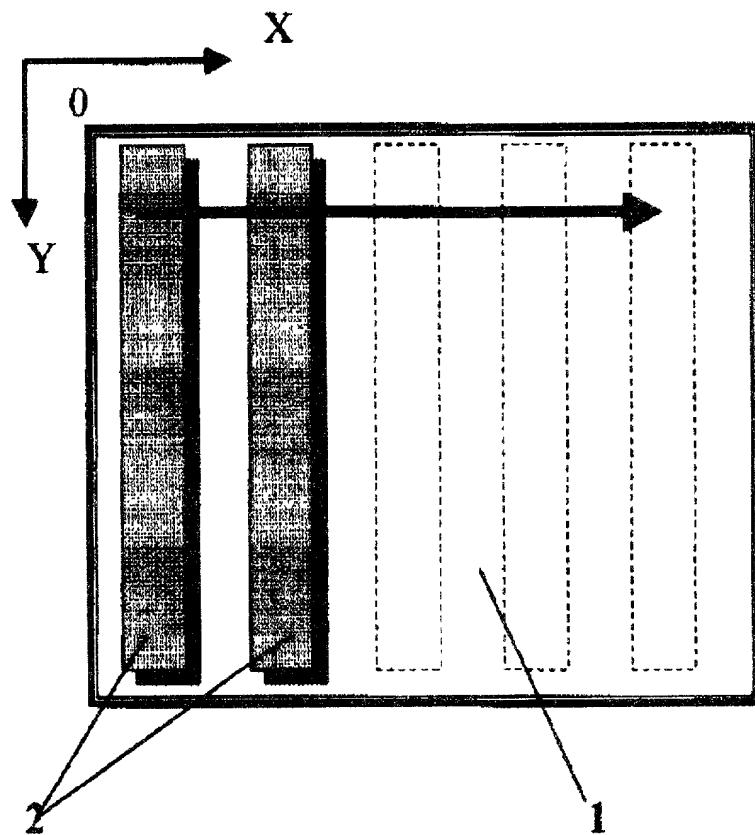
1 – Microscope Frame(Field of View);  
2 – Test-Object Strips Images.



**Fig.9**

Transformation of the One-Dimensional Individual Pitch Values Array (a) into Mean Pitch Value (b) According to Claims 5r and 5s.

3 – Individual Pitch Values Versus Coordinate Y; 4 - Mean pitch Values Created by Averaging of Individual Pitch Values along Y-Direction.



**Fig.10**

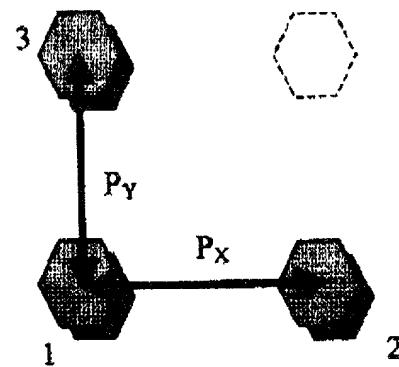
**Test-Object Geometry According Claim 5 and its Orientation on the Microscope Stage.**

1 – Microscope Frame(Field of View);  
2 – Test-Object Strips Images.

The Arrow at Top of the Frame Indicates Line Scan Direction.



**Fig.11**



**Fig.3-12**

### Кажущаяся и истинная нелинейности микроскопа XL40-2

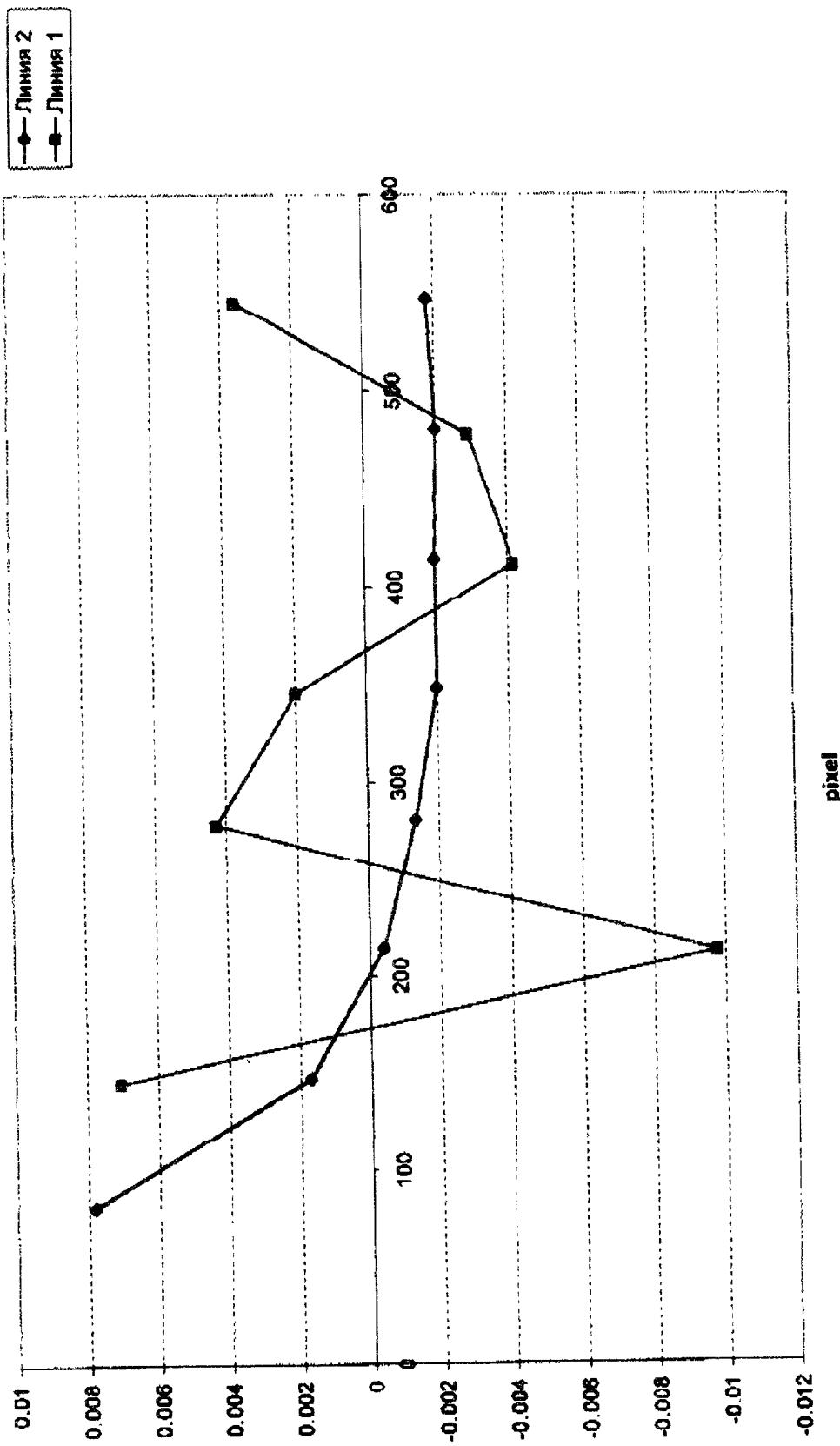


Fig. 13

### Non Uniformity of NIST Sample

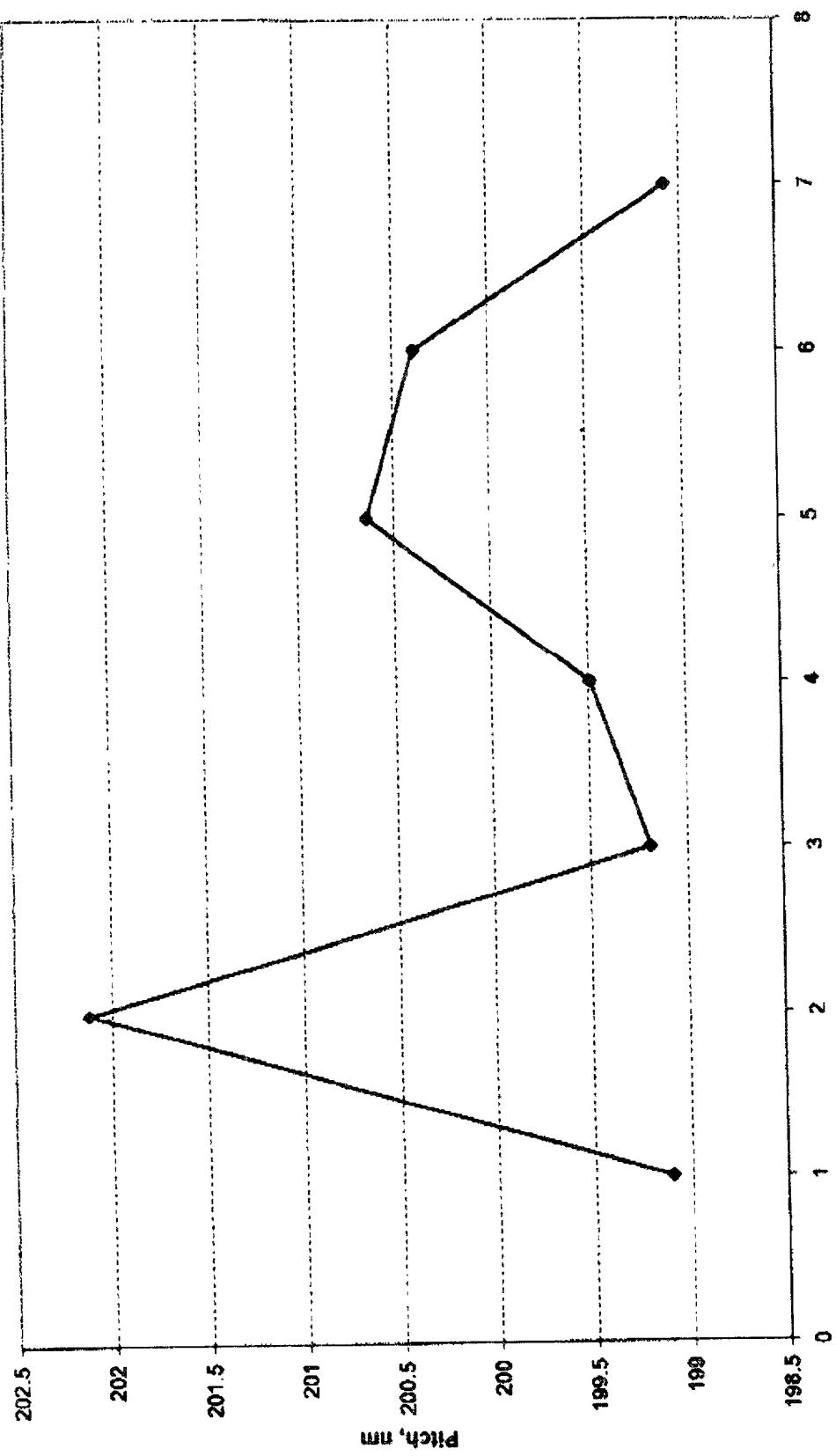


Fig. 14